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09/608,209	06/30/2000	Paul England	MS-65/2 (127316.1)	9289

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EXAMINER	
HOFFMAN, BRANDON S	
ART UNIT	PAPER NUMBER
2136	9

DATE MAILED: 08/27/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/608,209	ENGLAND ET AL.	
	Examiner	Art Unit	
	Brandon Hoffman	2136	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) 1-37 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) 1-37 is/are rejected.

7)☒ Claim(s) 13 is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on 20 June 2000 is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date 2, 7, and 8.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Specification

1. The disclosure is objected to because of the following informalities:

- On page 4, lines 23, "White Paper" is written twice. Please remove one of these occurrences.
- On page 6-
  - Line 9, the Authentication and Key Exchange Subsystem is missing its reference number. Please add reference number 116.
  - Lines 11, 15, and 23, Content Cipher Subsystem is missing its reference number. Please add reference number 120.

Claim 13 is objected to because of the following informalities:

- Regarding claim 13, line 1, "comprising;" should be –comprising: –.

Appropriate correction is required.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless -
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States

only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 1-4, 9-11, and 14 are rejected under 35 U.S.C. 102(e) as being anticipated by Thue (U.S. Patent No. 6,002,707).

Regarding claims 1 and 14, Thue teaches a method/machine readable medium of processing first, second, and third signals for use in a system having first, second, third and fourth signal lines, comprising:

- Generating a fourth signal (col. 2, lines 6-24);
- Generating, using a pseudo-random number generator, pseudo-random output values (fig. 1, ref. num 110 and 130); and
- Changing, as a function of at least one of said pseudo-random output values, which ones of the first, second, third and fourth signal lines are used to transmit the first, second, third, and fourth signals (fig. 1, ref. num 130 and col. 2, lines 6-24).

Regarding claim 2, Thue teaches wherein generating a fourth signal includes processing at least one of the first, second or third signals to generate the fourth signal from said at least one of the first, second, or third signals (col. 2, lines 6-24).

Regarding claim 3, Thue teaches wherein generating a fourth signal includes performing the act of switching between at least two of said first and second signals to generate said fourth signal (col. 2, lines 6-24).

Regarding claim 4, Thue teaches wherein generating a fourth signal includes:

- Performing a high pass filtering operation on one of said first, second and third signals to produce a filtered signal (fig. 2, ref. num 225); and
- Combining the filtered signal with a modulated pedestal signal to generate said fourth signal (fig. 2, ref. num 230).

Regarding claim 9, Thue teaches a method of processing first, second, and third video signals, the method comprising:

- Generating a fourth video signal (col. 2, lines 6-24),
- Transmitting the first, second, third, and fourth video signals over first, second, third and fourth lines (col. 2, lines 6-13),

  The transmitting including:
- Periodically swapping the lines used to transmit the first, second, third and fourth video signals (fig. 1, ref. num 30 and col. 2, lines 6-24).

Regarding claim 10, Thue teaches further comprising modifying at least one of said first, second and third signals prior to transmitting them (col. 2, lines 6-24).

Regarding claim 11, Thue teaches wherein modifying at least one of said first, second and third signals includes modulating horizontal synchronization information on each of said first, second, and third video signals (col. 4, lines 38-59).

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. Claims 5, 12, and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Thue (USPN '707) in view of Maeshima et al. (U.S. Patent No. 6,486,923).

Regarding claim 5, Thue teaches all the limitations of claim 1, above. However, Thue does not teach wherein the changing step is performed by a matrix multiplication operation performed on the first, second, third and fourth signals utilizing matrix coefficients generated from a plurality of the pseudo-random output values.

Maeshima et al. teaches wherein the changing step is performed by a matrix multiplication operation performed on the first, second, third and fourth signals utilizing matrix coefficients generated from a plurality of the pseudo-random output values (fig. 1, ref. num 50).

It would have been obvious to one of ordinary skill in the art, at the time the invention was made, to combine changing by matrix multiplication on the first through fourth signals utilizing coefficients from pseudo-random output values, as taught by Maeshima et al., with the method of Thue. It would have been obvious for such

modifications because the pseudo-randomly generated matrix coefficients give a randomness to the encryption and the matrix multiplication operation using the coefficients allows a way to modify the red, green, and blue signals in order to encrypt the video signals (see col. 3, lines 21-23 of Maeshima et al.).

Regarding claim 12, Thue teaches all the limitations of claims 9-11, above. However, Thue does not teach wherein periodically swapping the lines used to transmit the first, second, third and fourth video signals includes the act of performing a matrix multiplication operation on the first, second, third and fourth video signals to determine the line on which each of the video signals are transmitted.

Maeshima et al. teaches wherein periodically swapping the lines used to transmit the first, second, third and fourth video signals includes the act of performing a matrix multiplication operation on the first, second, third and fourth video signals to determine the line on which each of the video signals are transmitted (fig. 2 and col. 4, top of page).

It would have been obvious to one of ordinary skill in the art, at the time the invention was made, to combine performing matrix multiplication on the first through fourth signals to determine the line on which each of the video signals are transmitted, as taught by Maeshima et al., with the method of Thue. It would have been obvious for such modifications because the multiplied signals obtain the best values for each signal

line. By placing the appropriate signal on the calculated signal line, the best picture is displayed.

Regarding claim 13, Thue as modified by Maeshima et al. teaches further comprising:

- Operating a pseudo random number generator to generate a set of values (see fig. 2,ref. num 'ra,' 'rb,' and 'rc' of Maeshima et al.); and
- Wherein said matrix multiplication operation is performed as a function of said set of generated values (see col. 4, top of page of Maeshima et al.).

Claims 15-24 and 26-30, 32-34, 36, and 37 are rejected under 35 U.S.C. 103(a) as being unpatentable over Thue (USPN '707) in view of Kohn et al. (U.S. Patent No. 6,570,990).

Regarding claims 15 and 26, Thue teaches a method of transmitting signals, the method comprising:

- During a second period of time, combining the horizontal synchronization information with at least one of the vertical synchronization signal, red video signal, green video signal and blue video signal (col. 2, lines 6-24); and
- During the second period of time, transmitting a fourth video signal on said fourth line (col. 2, lines 6-24).

Thue does not teach during a first period of time transmitting red, green, and blue video signals on first, second, and third lines, respectively, transmitting horizontal synchronization information on a fourth line, and transmitting vertical synchronization signals on a fifth line.

Kohn et al. teaches during a first period of time transmitting red, green, and blue video signals on first, second, and third lines, respectively, transmitting horizontal synchronization information on a fourth line, and transmitting vertical synchronization signals on a fifth line (these steps are well known in video transmission, also see fig. 2 of Kohn et al.).

It would have been obvious to one of ordinary skill in the art, at the time the invention was made, to combine transmitting RGB, horizontal and vertical sync signals, as taught by Kohn et al., with the method of Thue. It would have been obvious for such modifications because this transmission method provides a video signal to a receiver with the appropriate signals to sync the video for proper display.

Regarding claim 16, Thue as modified by Kohn et al. teaches further comprising generating the fourth video signal from at least one of the red, green and blue video signals (see col. 2, lines 6-24 of Thue).

Regarding claim 17, Thue as modified by Kohn et al. teaches wherein during the second period of time the method further comprises:

- Transmitting each of the red, green and blue video signals and the fourth video signal on one of the first, second, third and fourth lines (see col. 2, lines 6-13 of Thue); and
- Periodically swapping the lines used to transmit the red, green, and blue video signals and fourth video signal (see fig. 1, ref. num 130 and col. 2, lines 6-24 of Thue).

Regarding claims 18, 27, and 32, Thue as modified by Kohn et al. teaches wherein combining the horizontal synchronization information with at least one the vertical synchronization signal, red video signal, green video signal, and vertical synchronization signal includes modulating the horizontal synchronization information on each of the red, green and blue video signals (see col. 2, lines 6-24 of Thue).

Regarding claim 19, Thue as modified by Kohn et al. teaches wherein bi-phase modulation is used to modulate the horizontal synchronization information on the red, green and blue video signals (see fig. 2, ref. num 225 of Thue).

Regarding claim 20, Thue as modified by Kohn et al. teaches wherein combining the horizontal synchronization information with at least one of the vertical synchronization signal, red video signal, green video signal and blue video signal

includes combining the horizontal synchronization information with the vertical synchronization signal to form a composite synchronization signal including horizontal and vertical synchronization information (see col. 2, lines 6-24 of Thue).

Regarding claim 21, Thue teaches a method of operating a display device, comprising receiving first, second, third, and fourth signals (fig. 2, ref. num 250, multiple signals).

Thue does not teach the signals are video signals, decrypting the signals based on a random number, or supplying RGB signals to a display device.

Kohn et al. teaches performing a decryption operation on the received video signals, as a function of at least one value generated by a pseudo random number generator, to generate red, green and blue video signals (fig. 3, on the receiving side) and supplying the red, green and blue video signals to a display (fig. 8, ref. num 160).

It would have been obvious to one of ordinary skill in the art, at the time the invention was made, to combine decrypting the received video as a function of a random number and supplying RGB signals to a display, as taught by Kohn et al., with the method of Thue. It would have been obvious for such modifications because decrypting the video with the random number is necessary to retrieve the true RGB signal so it can be supplied to a display to provide the user a video image.

Regarding claims 22 and 36, Thue as modified by Kohn et al. teaches further comprising performing a demodulation operation on at least one of the first, second, third and fourth video signals to recover horizontal timing information (see col. 2, lines 6-24 of Thue, the reversed decryption operation performs mirrored processes as those used to encrypt the signal).

Regarding claim 23, Thue as modified by Kohn et al. teaches wherein performing a demodulation operation includes performing a bi-phase decoding operation to recover bi-phased encoded horizontal synchronization information (see fig. 2, ref. num 225 of Thue).

Regarding claim 24, Thue as modified by Kohn et al. teaches further comprising:

- Exchanging a session key with a display adapter (see fig. 5, ref. num 508 of Kohn et al.); and
- Using the session key to control the pseudo random number generator (see fig. 6, ref. num 529 and 530 of Kohn et al.).

Regarding claim 28, Thue as modified by Kohn et al. teaches further comprising, during the second time period of operation:

- Performing a decryption operation on the first, second, third and fourth encrypted video signals to generate red, green and blue video signals (see fig. 7 of Kohn et al.); and

- Generating an image on a display from said generated red, green and blue video signals (see fig. 8, ref. num 160 of Kohn et al.).

Regarding claim 29, Kohn et al. teaches a video adapter comprising:

- A pseudo random number generator (fig. 2, ref. num 200);
- Means for performing, as a function of a value generated by said pseudo random number generator, a video signal encryption operation on first, second, and third video signals and said fourth video signal to produce first, second, third, and fourth encrypted video signals (fig. 6).

Kohn et al. does not teach a video signal generator for generating a fourth video signal.

Thue teaches a video signal generator for generating a fourth video signal (col. 2, lines 6-24).

It would have been obvious to one of ordinary skill in the art, at the time the invention was made, to combine generating a fourth signal, as taught by Thue, with the method of Kohn et al. It would have been obvious for such modifications because a fourth signal can carry other information besides a RGB signal. The fourth generated signal can be sync information, as is well known in the video transmission art.

Regarding claim 30, Thue as modified by Kohn et al. teaches wherein the video signal generator includes means for generating said fourth video signal from at least one of said first, second and third video signals (see col. 2, lines 6-24 of Thue).

Regarding claim 33, Thue as modified by Kohn et al. teaches:

- Wherein the first, second, third and fourth video signal are analog video signals (it is inherent from Thue that the signals are analog); and
- Wherein the first, second, third and fourth encrypted video signals are analog signals (it is inherent from Thue that the signals are analog).

Regarding claim 34, Kohn et al. teaches a display device, comprising:

- A pseudo random number generator (fig. 2, ref. num 200);
- A video decryption circuit for performing, in parallel, a video decryption operation on first, second, third and fourth encrypted video signals as a function of at least one value output by said pseudo random number generator to produce analog red, green and blue video signals (fig. 7).

Kohn et al. does not teach a fourth signal.

Thue teaches a fourth signal (fig. 1, ref. num 130).

It would have been obvious to one of ordinary skill in the art, at the time the invention was made, to combine decrypting a fourth signal, as taught by Thue, with the method of Kohn et al. It would have been obvious for such modifications because a system with four signals that are encrypted would need to decrypt four signals for proper restoration of a video image.

Regarding claim 37, Thue as modified by Kohn et al. teaches further comprising:

- Means for supplying a horizontal signal generated by said means for demodulating to a display during an encrypted mode of display operation (see fig 2 of Thue, provides a fourth signal line for transmission of horizontal sync); and
- Means for supplying a horizontal signal received during an unencrypted mode of operation to the display (see fig 2 of Thue, provides a fourth signal line for transmission of horizontal sync).

Claims 6-8, 25, 31, and 35 are rejected under 35 U.S.C. 103(a) as being unpatentable over Thue (USPN '707) in view of Maeshima et al. (USPN '923), and further in view of Kohn et al. (U.S. Patent No. 6,570,990).

Regarding claim 6, Thue as modified by Maeshima et al. teaches all the limitations of claims 1 and 5, above. However, the combination of Thue in view of Maeshima et al. does not disclose the provisions of wherein the first, second, and third signal lines couple a source device to a destination device, said pseudo-random

number generator contained within the source device, the method further comprising: operating the source device to communicate with the destination device so as to establish a session key; and operating the pseudo-random number generator to generate said pseudo-random output values as a function of the established session key.

Kohn et al. teaches such provisions: wherein the first, second, and third signal lines couple a source device to a destination device, said pseudo-random number generator contained within the source device (fig. 1, ref. num 120 and fig. 2, ref. num 200), the method further comprising:

- Operating the source device to communicate with the destination device so as to establish a session key (fig. 6, ref. num 529); and
- Operating the pseudo-random number generator to generate said pseudo-random output values as a function of the established session key (fig. 6, ref. num 530).

It would have been obvious to one of ordinary skill in the art, at the time the invention was made, to combine the above provisions, as taught by Kohn et al., with the method of Thue/Maeshima et al. It would have been obvious for such modifications because establishing a session key is needed in encryption/decryption devices in order for proper decryption to take place. Generating pseudo-random output values as a

function of the session key utilizes the established session key to use as a seed for a pseudo-random number to provide random data that is used in encrypting the data.

Regarding claim 7, Thue as modified by Maeshima et al./Kohn et al. teaches wherein the first, second and third signals are red, green and blue video signals, respectively (see fig. 9 of Kohn et al.), the method further comprising the steps of encrypting horizontal synchronization information into at least one of said red, green and blue video signals prior to changing which ones of the first, second, third and fourth signal lines are used to transmit said first, second and third signals (see col. 2, lines 6-24 of Thue).

Regarding claim 8, the Examiner believes this step to be inherent in that further comprising transmitting a horizontal synchronization signal over said fourth line prior to using the fourth line to transmit one of said first, second and third video signals would be required in order for the system to operate properly. A horizontal sync would need to be sent over the fourth signal line before the fourth signal line was used to send other data.

Regarding claims 25, 31, and 35, Thue as modified by Kohn et al. teaches all the limitations of claim 21, 29 and 30, & 34, respectively, above. However, the combination of Thue as modified by Kohn et al. does not teach wherein the means for performing a video signal encryption operation includes a matrix multiplier, or wherein performing a

decryption operation includes performing a matrix multiplication operation, on the received first, second, third, and fourth video signals, as a function of at least one value generated by the pseudo random number generator, to produce said red, green and blue video signals.

Maeshima et al. teaches wherein the means for performing a video signal encryption operation includes a matrix multiplier (fig. 2) and wherein performing a decryption operation includes performing a matrix multiplication operation, on the received first, second, third, and fourth video signals, as a function of at least one value generated by the pseudo random number generator, to produce said red, green and blue video signals (fig. 1, ref. num 50).

It would have been obvious to one of ordinary skill in the art, at the time the invention was made, to combine encrypting/decrypting by a matrix multiplication operations, as taught by Maeshima et al., with the method of Thue/Kohn et al. It would have been obvious for such modifications because the mirrored process is used for decryption as that of encryption. A matrix multiplication would properly restore the video signals.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Brandon Hoffman whose telephone number is 703-305-4662. The examiner can normally be reached on M-F 8:30 - 5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ayaz Sheikh can be reached on 703-305-9648. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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